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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/636,783	08/11/2000	Hidefumi Yamashita	13783 (JP9-1999-0150 US1)	8476
7590 06/17/2004 Scully Scott Murphy & Presser 400 Garden City Plaza Garden City, NY 11530			EXAMINER NGUYEN, HOAN C	
			ART UNIT 2871	PAPER NUMBER

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/636,783

Applicant(s)

YAMASHITA ET AL.

Examiner

HOAN C. NGUYEN

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 15-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 15 March 2004 has been entered.

Applicant cancelled claims 1-14 and added new claims 15-18.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan et al. (US5831710A) in view of Kitahiro et al. (JP362052531).

Colgan et al. teach (Figs. 2 and 6-7) a liquid crystal display device which has first and second substrates disposed with a predetermined gap, and seals a liquid crystal in the gap, comprising:

Art Unit: 2871

- a seal member (adhesive 52) provided at the gap between said first and second substrates (substrate 40 and cover 50), said seal member being disposed outside a display area to seal said liquid crystal 53;
- a wall-like structure (barrier 25) disposed outside the display area and inside the seal member,

wherein there is provided a column-like structure for keeping the gap between said first and second substrates constant, and a shape of said wall-like structure is determined based on a state of said column-like structure, said wall-like structure being made of a different material from that of said seal member and formed in plural rows (col. 5, lines 18-23); said wall-like structure is composed of dashed rows such that the notches in one row of said plural wall-like structures are always offset relative to the notches in another row of said wall-like structures along the lengths of said wall-like structure so that said seal material does not flow directly into said display area from exteriorly of said wall-like structures; said notches of said wall-like structure are formed alternately or offset in the plurality of dashed rows so that said seal material does not flow directly into said display area (col. 5, lines 18-23).

wherein (Figs. 2 and 7)

- positions of the notches of the plural dashed rows in said wall-like structure are determined based on a position of a wiring formed either on said first substrate or on said second substrate (Fig. 7).

- a column-like structure for keeping the gap between said first and second substrates constant is provided, and a shape of said wall-like structure is determined based on a state of said column-like structure.

However, Colgan et al. fail to disclose a liquid crystal display device with the wall-like structure formed to a height lower than that of the gap formed between said first substrate and said second substrate.

Kitahiro et al. teach (Figs. 1-4) a liquid crystal display device, wherein said wall-like structure (barrier 6) is formed to a height lower than that of the gap formed between said first substrate and said second substrate for reducing the meniscus of the liquid crystal material regulating a size of the gap between said first and second substrates.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display device as Colgan et al. disclosed with the wall-like structure formed to a height lower than that of the gap formed between said first substrate and said second substrate for reducing the meniscus of the liquid crystal material regulating a size of the gap between said first and second substrates.

2. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan et al. (US5831710A) in view of Kitahiro et al. (JP362052531).

Colgan et al. teach (Figs. 2 and 6-7) a liquid crystal display device which has first and second substrates disposed with a predetermined gap, and seals a liquid crystal in the gap, comprising:

- a seal member (adhesive 52) provided at the gap between said first and second substrates (substrate 40 and cover 50), said seal member being disposed outside a display area to seal said liquid crystal 53;
- wall-like structure (barrier 25) comprising a plurality of parallel rows of alternately staggered notched walls disposed outside said display area and inside said seal member, such that the notches in one row of said plural wall-like structure are always offset relative to the notches in another row of said wall-like structures along the lengths of said well-like structures and forming an undulating passageway, said wall-like structure being for preventing said seal member from flowing into said display area from exteriorly of said wall-like structure.

wherein

- said seal member flows out in a fluidized state when said second substrate is pressed into said first substrate while heating said first and second substrates, and said wall-like structure is capable of stopping said seal member from entering said display area, through said staggered notched walls 25 as shown in Figs. 2 and 7, said seal member being in a fluidized state, and permitting said liquid crystal to flow into outside the wall-like structure when said liquid crystal

flows out from said display area. This is enhanced for technique of sealing the seal member and injecting the liquid crystal materials.

- wall-like structure prevents air traps from occurring when said liquid crystal to be sealed flows into said display area by forming the meniscus of the liquid crystal material.

However, Colgan et al. fail to disclose a liquid crystal display device with the wall-like structure formed to a height lower than that of the gap formed between said first substrate and said second substrate.

Kitahiro et al. teach (Figs. 1-4) a liquid crystal display device, wherein said wall-like structure (barrier 6) is formed to a height lower than that of the gap formed between said first substrate and said second substrate for reducing the meniscus of the liquid crystal material regulating a size of the gap between said first and second substrates.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display device as Colgan et al. disclosed with the wall-like structure formed to a height lower than that of the gap formed between said first substrate and said second substrate for reducing the meniscus of the liquid crystal material regulating a size of the gap between said first and second substrates.

3. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan et al. (US5831710A) in view of Kitahiro et al. (JP362052531).

Colgan et al. teach (Figs. 2-7) a method of manufacturing the liquid crystal display device comprising the steps of

- applying resin onto a first substrate, and patterning said resin to form a frame-shaped wall-like structure surrounding a display electrode; said wall like structure takes a frame-shaped structure composed of a plurality of rows, each row showing a dashed line shape have predetermined notches 25 (Figs. 2 and 7) in staggered offset relationship to each other such that the notches in one row of said plural wall-like structures are always offset relative to the notches in another row of said wall-like structures along the lengths of said well-like structure so as to inhibit flow of said seal member therethrough toward said liquid crystal;
- arranging a second substrate so as, to face said first substrate on which said seal member is applied,
- pressing said second substrates to each other by said seal material as prior art disclosed in Fig. 1 (col. 3, lines 15-17);
- injecting a liquid crystal into a gap between said first and second substrates, which are adhered to each other. This is well known prior art.

However, Colgan et al. (US5831710A) fail to disclose (a) wall like structure is formed by applying photosensitive resin onto said first substrate, performing a UV exposure for the resin using a photomask, and curing the resin; (b) an alignment film is

Art Unit: 2871

applied after the formation of said wall-like structure and then said seal member is applied outside said wall-like structure, (c) said wall-like structure being formed to a height lower than that of the gap formed between said first substrate and said second substrate.

it is well-known art that said wall like structure is formed by applying photosensitive resin onto said first substrate, performing a UV exposure for the resin using a photomask to pattern the wall-like structure, and curing the resin to harden the resin. it is also well-known art that an alignment film is applied after the formation of said wall-like structure for regulating orientation the liquid crystal molecules.

Kitahiro et al. teach (Figs. 1-4) a liquid crystal display device, wherein said wall-like structure (barrier 6) is formed to a height lower than that of the gap formed between said first substrate and said second substrate for reducing the meniscus of the liquid crystal material and regulating a size of the gap between said first and second substrates.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display device as Colgan et al. disclosed with (a) wall like structure formed by applying photosensitive resin onto said first substrate, performing a UV exposure for the resin using a photomask to pattern the wall-like structure, and curing the resin to harden the resin; an

Art Unit: 2871

alignment film applied after the formation of said wall-like structure for regulating orientation the liquid crystal molecules and said wall-like structure (barrier 6) is formed to a height lower than that of the gap formed between said first substrate and said second substrate for reducing the meniscus of the liquid crystal material and regulating a size of the gap between said first and second substrates.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571)272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

chn
April 7, 2004

HOAN C. NGUYEN
Examiner
Art Unit 2871


ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800